SNC Reference Number
(enter if previously assigned)

SNC080036

PROJECT SUMMARY

County: Fresno and Madera

Applicant: The Wilderness Society, California/Nevada Regional Office

Project Title: Documenting Motor Vehicle Impacts on Watersheds, Wildlife and Forest Visitors

PROJECT GOAL

The goals of this project are to: (1) document the impacts of motor vehicle activity on watershed health, wildlife communities, and forest visitors in Sierra National Forest, and (2) contribute this information towards the design of sustainable recreation and transportation systems.

PROJECT SCOPE

The popularity of motorized recreation activities has led to a tremendous expansion of road and trail networks, as well as increasing use of existing routes on our public lands. Much more information is needed about the potentially significant impacts of this increasing motor vehicle activity for soils, watersheds, water resources, wildlife communities, and the recreational experiences of forest visitors. Motor vehicle activity, if not well managed, could prove to be one of the most widespread factors affecting rivers, lakes, streams and watersheds in the Sierra Nevada region.

The project we propose represents a crucial step in advancing our understanding of how motor vehicle activity impacts water and other natural resources in California. Although this information is critical to support planning and land management processes now underway in the Sierra Nevada, public agencies have limited staff and financial resources to collect the necessary data. Using Sierra National Forest as a case study, we propose to monitor the spatial pattern and intensity of motor vehicle activity and measure some key indicators of impacts to natural resources and forest visitors:

(1) **Watershed health** – We will measure the physical footprint of roads and motorized trails and associated soil compaction and water infiltration, to estimate surface changes to watersheds and impacts on downstream water quality.

(2) **Wildlife communities** – We will survey bird and carnivore communities and measure sound at variable distances away from routes, to estimate the extent of noise propagation and relate noise and motor vehicle activity patterns to changes in wildlife distributions.

(3) **Forest visitors** – We will measure noise and visual disturbances to forest visitors resulting from motor vehicle activities, identify areas that are particularly suitable for motorized and non-motorized recreational opportunities, and contribute this information to planning processes for sustainable recreation and transportation systems.

We will develop efficient and effective methods for monitoring motor vehicle disturbances that can be readily adopted for future research and planning efforts. We will collect baseline information about motor vehicle activity patterns that will be useful for investigating broader-scale impacts to water and air resources as well as wildfire risks. The field surveys will take place in Sierra National Forest, but results of this research will be applicable to planning and land management activities in public lands throughout the Sierra Nevada region. In particular, the project will support and inform the USDA Forest Service's (USFS) comprehensive Travel Management Planning process, which will determine where motorized recreation is appropriate for every national forest in California. Results of the project will be communicated in regular website updates and a series of workshops in the Sierra Nevada region to discuss our results with scientists, planners, land managers, and interested citizens.

We have established a partnership with the University of California, Berkeley, which will contribute scientific and technical expertise, field equipment, staff assistance, and logistical support. We are also collaborating with staff at the Natural Sounds Program of the National Park Service (NPS) in the design and construction of equipment for monitoring motor vehicle activity and the analysis of monitoring data. We have coordinated with Sierra National Forest and the USFS Pacific Southwest Research Station to determine the location and timing of field surveys. We will seek additional partnerships to share results of the research program with staff scientists, land managers, recreation and transportation planners.

We completed one pilot field season during the summer of 2008. Major project tasks will include continuing to collect data in Sierra National Forest for two additional field seasons (2009 and 2010) and analyzing the resulting data. In 2011, we will write a comprehensive report detailing the impacts of motor

vehicle activity on watershed health, wildlife communities, and forest visitors, and we will create maps showing areas of Sierra National Forest that are particularly suitable for recreation, and areas that are valuable for resource conservation. Following publication of this report, we disseminate the results to the land management agencies and through public workshops. We will document our progress in biannual reports to the Sierra Nevada Conservancy, and in a final report following the public workshops. In addition, we plan to make our project resources available to the public, by regularly posting our interim reports, data and maps on a project website.

Improving our understanding of how motor vehicle activity affects watershed health, wildlife communities, and human visitors will contribute to the long-term sustainability of the Sierra Nevada region by providing timely information to support ongoing planning and land management processes.

We are requesting a grant from the Sierra Nevada Conservancy to support purchase of essential equipment, research staff time, and expenses associated with collection and analysis of field data in Sierra National Forest and communication of the project results. The Wilderness Society is providing $154,700 in additional support to this project via grants to the California/Nevada Regional Office from the Richard and Rhoda Goldman Fund, Resources Legacy Fund Foundation, Wyss Foundation, and several individual donors.

LETTERS OF SUPPORT

- California Wilderness Coalition (CWC)
- Central Sierra Environmental Resource Center (CSERC)
- Natural Sounds Program, National Park Service (NPS)
- North Coast Research & Extension Group, UC-Berkeley
- Office of the Forest Supervisor, Sierra National Forest
- Pacific Southwest Research Station, USDA Forest Service
- Public Employees for Environmental Responsibility (PEER), California Chapter
- Road Ecology Center, UC-Davis

SNC PROJECT DELIVERABLES AND SCHEDULE

DETAILED PROJECT DELIVERABLES	TIMELINE
Purchase equipment and supplies, renew permit, hire field technicians	3/09 – 5/09
Monitor field sites in Sierra National Forest	6/09 – 8/09
Analyze field data and communicate results via website updates	9/09 – 2/10
Purchase equipment and supplies, renew permit, hire field technicians	3/10 – 5/10
Monitor field sites in Sierra National Forest	6/10 – 8/10
Analyze field data and communicate results via website updates	9/10 – 2/11
Publish and distribute comprehensive report and maps	6/11
Host workshops for local stakeholders and public agencies	6/11 – 8/11
Submit interim and final reports to Sierra Nevada Conservancy	9/09, 3/10, 9/10, 3/11, 9/11

SNC PROJECT COSTS

PROJECT BUDGET CATEGORIES	TOTAL SNC FUNDING
Staff (5% of TWS Landscape Ecologist salary and benefits to oversee project, train staff, and implement field surveys; 2 years @ $4,500/yr)	$ 9,000
Staff (three full-time, temporary field technicians; 2 years @ $18,000/yr)	$ 36,000
Staff (one part-time, temporary data analyst; 2 years @ $6,000/yr)	$ 12,000
Field Equipment (infiltrometer, penetrometer, trail monitors, laser rangefinder, digital camera, microphones, compasses, etc.)	$ 5,000
Field Supplies (flagging, batteries, maps, chalk, contact paper, wire, tape, field notebooks, markers, etc.; 2 years @ $1,000/yr)	$ 2,000
Printing and Mailing (final comprehensive report and maps)	$ 2,000
Host workshops for local stakeholders and land managers	$ 2,000
SNC GRANT TOTAL	**$ 68,000**